

St. Francois Knobs

Conservation Opportunity Area



Ozark
Highlands



The St. Francois Mountains in southeast Missouri are among the oldest mountains in the world.

Jim Rathert, Missouri Department of Conservation

The St. Francois Mountains formed 1.5 billion years ago at a time when molten lava still flowed over much of the Earth's surface. Huge pockets of magma welled up in dome shapes and then slowly cooled, forming igneous rock. Over time, these domes sank beneath oceans and were capped with hundreds of feet of sedimentary rock. Later, geologic forces raised the land again. Erosion wore away overlying layers of dolomite and sandstone, and the rounded igneous domes, or knobs, became the characteristic mountains of the Ozarks.

The St. Francois Knobs Conservation Opportunity Area (COA) is the primary igneous rock landscape in Missouri. This landscape of forests, woodlands, glades, caves, fens and creeks is also the place to see the tallest

waterfall in the state. Missouri's highest mountain, Taum Sauk Mountain, reaches 1,772 feet in elevation. The headwaters of three Ozark rivers (St. Francis River, Black River and Big River) begin in this high elevation region.

Igneous glades persist on the rockiest and most exposed sites. These glades support an unexpected population of Mead's Milkweed, a federally threatened tallgrass prairie plant. Oak and short-leaf pine woodlands surround the glades. Historically, the patchwork of woodlands and glades in the St. Francois Knobs were created and maintained by periodic natural fires. Today, restoration efforts include using fire to prevent cedars and other trees from taking over open spaces.

St. Francois Knobs Conservation Strategies

- Restore natural processes and habitats by promoting the use of prescribed fire and timber stand thinning on glades and woodlands.
- Convert non-native grasslands to restored natural communities.
- Reduce erosion by reforesting river banks and bottomland forests.
- Improve water quality and aquatic habitats.
- Work with willing private landowners to protect and manage native plants and animals.
- Increase public outreach and education. Work cooperatively with local partnership groups and landowners.

The *St. Francis River crayfish* lives only in tributaries of the St. Francis River. Because of its small home range, this species is vulnerable to extinction from pollution and other threats.



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Hughes Mountain Natural Area features igneous glades and woodlands on thin, rocky soils.

Priority Research and Inventory Needs

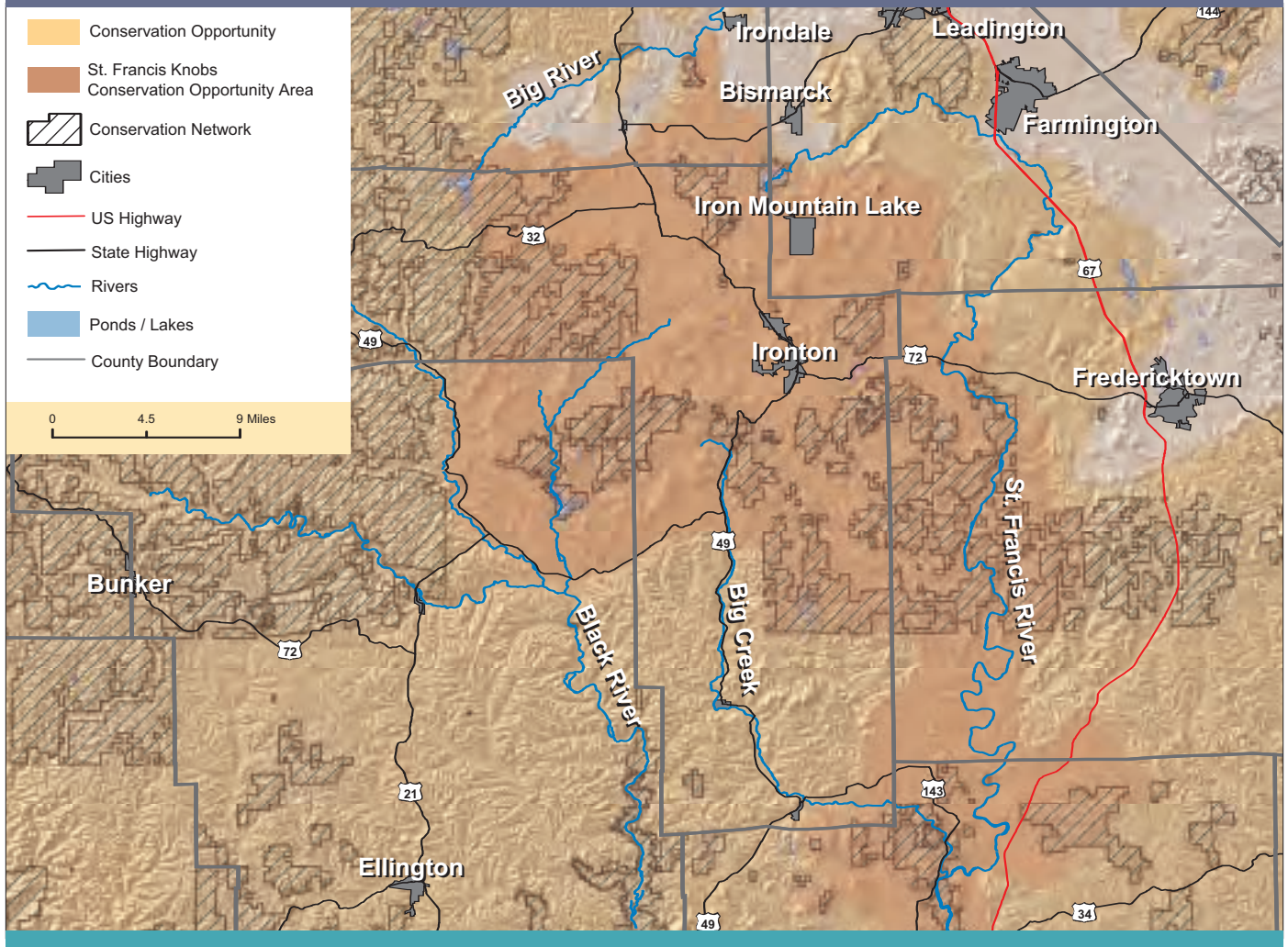
- Assess feral hog populations and implement control strategies.
- Inventory private forest resources; update Best Management Practices.
- Determine prescribed fire burn rotations and management regimes best suited for glade and woodland restoration.
- Quantify soil loss during prescribed fire management.
- Assess oak decline and define strategies to improve the health of timbered communities.
- Monitor populations of aquatic invertebrates including big creek crayfish, St. Francis River crayfish and belted crayfish.
- Monitor bat populations and inventory cave life.
- Inventory fens, fish, mussels, forest interior birds and amphibians and reptiles.
- Determine the causes of increased gravel in the Black River.

Conservation Partners

Existing: Missouri Bird Conservation Initiative; Central Hardwoods Joint Venture; National Wild Turkey Federation (NWTf); Otahki Girl Scouts; Missouri Department of Conservation (MDC); Missouri Department of Natural Resources (DNR); U.S. Forest Service (USFS); U.S. Fish and Wildlife Service (USFWS)

Potential: Audubon Missouri; Sierra Club; The Nature Conservancy – Missouri Chapter; Missouri Prairie Foundation; Ozark Society; Ozark Regional Land Trust; Stream Teams; Missouri Parks Association; Eastern Ozark Forestry Council; Bat Conservation International; U.S. Army Corp of Engineers (USACE); Natural Resources Conservation Service (NRCS)

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Funding Sources

Existing: DNR annual budget; USFS annual budget; USFWS annual budget; MDC annual budget; MDC State Wildlife Grants; MDC Private Lands Cost Share Program; Farm Service Agency Conservation Reserve Program; NRCS Wetland Reserve Program; NRCS Environmental Quality Incentives Program; NRCS Wildlife Habitat Incentive Program

Promising Future Sources: MDC Landowner Incentive Program; MDC Wildlife Diversity funds; USFWS Partners for Fish and Wildlife Program; USFWS North America Wetlands Conservation Act grants; National Fish and Wildlife Foundation grants; NWTFF Wild Turkey Super Fund; Missouri Bird Conservation Initiative Grants; Ducks Unlimited grants; SWCD State Cost Share Funds

Existing Conservation Network

Bismarck Conservation Area; Buck Mountain Conservation Area and Natural Area; Buford Mountain Conservation Area; Cedar Mountain Conservation Area; Coldwater Conservation Area; Graves Mountain Conservation Area; Iron Mountain Lake; Ketcherside Mountain Conservation Area (Royal Gorge Natural Area); Lower Taum Sauk Lake; Millstream Gardens Conservation Area (St. Francis River Natural Area); Sam A. Baker State Park (Mudlick Mountain Natural Area); Taum Sauk Mountain State Park (St. Francois Mountains Natural Area); Johnson's Shut-ins State Park (Johnson's Shut-ins Natural Area, Johnson's Shut-ins Dolomite Glade Natural Area, Johnson's Shut-ins Fen Natural Area); Elephant Rocks State Park and Natural Area; Fort Davidson State Historic Site; Mark Twain National Forest – Salem/Potosi and Fredericktown Districts (Rockpile Wilderness; Bell Mountain Wilderness; Silver Mines Recreation Area); Wappapello Reservoir; Hughes Mountain Natural Area; Pilot Knob National Wildlife Refuge; Roselle Access

Ozark Shut-ins



Most streams and rivers in the St. Francois Knobs COA occur on privately owned land. Over 100 kinds of fish, mussels and crayfish can be found in their reaches. Canyon-like gorges called "shut-ins" form in streams that cut through areas of erosion-resistant igneous rock.

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Conservation Challenges

The St. Francois Knobs' igneous features are well represented in the existing conservation network. Continuing to work with willing private landowners will help manage the landscape's rare plants, animals and natural communities. Streams containing rare fish and crayfish are particularly important to conserve on private land. Continued

and expanded use of prescribed fire can restore igneous glade and woodland natural communities. Potential challenges to conservation success include funding and staff shortages and the public's lack of understanding of natural processes, habitats and restoration methods.

To learn more about the St. Francois Knobs Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
Jefferson City, MO 65102-0180